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Because of the far-reaching effects of student failure among culturally disadvantaged students, a study is being conducted in Israel to determine the value of preschool training, principally in kindergarten, in promoting necessary skills and abilities for success in school. Through a series of specially designed tests, the deficiencies of the students were found; methods for dealing with these deficiencies were integrated into a program to establish a give-and-take in meaningful communication with each child.

The program has to this time shown that one year of kindergarten raised the I.Q. of the culturally disadvantaged students to that of their peers. Achievement testing is not completed. Social and emotional adjustments in the kindergarten situation were not found to have progressed to the extent expected.

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PROGRESS REPORT

ON

A PROGRAM TO DEMONSTRATE WAYS OF USING A YEAR OF KINDERGARTEN TO PROMOTE COGNITIVE ABILITIES, IMPART BASIC INFORMATION AND MODIFY ATTITUDES WHICH ARE ESSENTIAL FOR SCHOLASTIC SUCCESS OF CULTURALLY DEPRIVED CHILDREN IN THEIR FIRST TWO YEARS OF SCHOOL.

We are now examining children included in the experiment, who are now (end of school year - June, 1964) finishing the first grade. Next year we shall test them again at the end of the second grade. Only then will it be possible to submit the final report.

Contents

a. Introduction to the problem
b. The objectives
c. The hypothesis
d. Stages of implementation
e. Additional research required in the light of the foregoing.

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A. INTRODUCTION TO THE PROBLEM

Several diagnostic studies carried out in Israel, mainly by the Szold Institute[1,2] show that children from socio-culturally underprivileged strata - most of them children of immigrants from various Middle Eastern and North African countries - are not prepared to cope with the demands of the school curriculum, and consequently tend to fail in their studies beginning with the first grade of elementary school.

The scholastic gap which is thus revealed between these children and those whose parents come from culturally advanced countries, is not closed in the course of the school career but, on the contrary, grows larger and results in grade repetition and early drop-out.

Scholastic failure has far-reaching effects. It leaves a mark on the emotional and social state of the children: a study carried out by us[2] showed that, during the year between completion of kindergarten and completion of the first grade, the children who had failed scholastically, have also deteriorated in their social and emotional adjustment. The most marked deterioration occurred in traits such as initiative, power of concentration, attitude to work and studies. Moreover, many of the children who failed in reading showed symptoms of slight emotional disturbance-a phenomenon which is a clear warning of future undesirable developments.

Scholastic failure also constitutes a severe blow to the parents, and may lead to serious disturbances in family life. For the most part, these parents are very anxious for their children to succeed in studies, because they regard this success as a guarantee of future social, economic and emotional advancement.

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1) Feitelson, D.: Causes of Scholastic Failure in First Graders. 1953

2) Adar, L.: Learning Difficulties of Immigrant Children in the Fourth Grade. In "Evaluating education achievements," M. Smilansky and L. Adar, editors. UNESCO Educational Studies and Documents.

3) Smilansky, S.: Evaluation of Early Education. In the UNESCO publication cited above.

These parents' reaction can be divided into three types. The first - a very seldom-encountered one - blaming the school, is the least threatening to the child's morale and family harmony (though, of course, very injurious in other ways, e.g. parents' attitude towards the school). The other two types - the most frequent ones - are: first, blaming the child, seeing him as a "disgrace to the family," an ingrate who repays the parents' hard work and sacrifices by failing in his studies. Sometimes the reaction is so extreme as to lead to rejection of the child and viewing him as no good altogether. The teachers tend to side with the parents, so that the child feels that the whole environment becomes hostile to him. This obviously increases his own tension and anxiety, undermines his ability to concentrate and erodes whatever self confidence he had possessed. Thus a vicious circle of failure - reproach - tension - anxiety - further failure - is created.

The third type of reaction is self-blame. The parents feel that they have not brought up the child properly, that they failed to help him; they even relate the child's failure to certain family events, such as a second marriage, etc.

In these families, the child's scholastic failure represents a further link in the chain of failures and difficulties which the parents underwent in the process of their adjustment to the new country. They regard the school as an instrument of social advance, but just as they blame themselves for not knowing how to take advantage of other available opportunities for their own or their children's good, so they blame themselves for lacking the ability to help the child take advantage of the school and the opportunities it offers to the successful scholar.

The prevalence of scholastic failure among children whose parents came from various Middle Eastern and North African lands is especially grave in view of the fact that such children constitute the majority in the primary grades of the school system, both because of the large size of immigration from these countries, and because of the high birth rate characteristic of these groups. It is therefore imperative to seek ways of overcoming scholastic failure by developing the children's skills and abilities and thus enable them, through successful studies, to integrate in the occupational, economic and social fabric of Israel.

We are fully aware of the fact that every country - even the most developed Western ones - have this problem of school failure or inadequate scholastic achievements in certain sequents of their population, mainly in remote rural areas and urban slum districts. For us, the solution of the problem is of paramount national importance, an integral part of rebuilding the nation in its land; but we think that it may prove of use and of value in other countries throughout the world.

B. THE OBJECTIVES

1) To promote cognitive abilities, impart basic information, vocabulary and concepts, and modify attitudes which are essential for scholastic success of culturally deprived children in their first two years of school.

2) To determine what learning experiences are essential for achieving the objectives of cognitive development, imparting information, shaping attitudes, vocabulary and concepts, and on this basis to prepare the program of work, tools, methods of work, etc.

3) To evaluate the relative contribution of abilities, basic attitudes and knowledge developed during the period of kindergarten education, toward scholastic success in the first grades of elementary school.

4) To examine possible ways of dividing the work of intellectual development between home and kindergarten.

5) To construct a battery of tests based on an analysis of the four main factors influencing scholastic success (namely, a) the school curriculum, b) teaching methods, c) textbooks, d) work methods) which has high correlation with actual scholastic achievement in the First and Second grades.

C. THE HYPOTHESES

1) One year of compulsory kindergarten education (age 5 - 6) in an experimental framework will cause a significant

rise in achievement on I. Q. tests (Stanford-Binet and WISC for children) on the part of culturally deprived children included in the experiment, as compared with the control groups.

2) The children's I. Q. at the end of the year will not significantly differ from the average found in children of the same age whose parents come from Europe, have an elementary school education or less, and engage in unskilled or semi-skilled occupation.

3) One year of this education will cause a significant rise in achievements on the tests constructed by us, as compared with the achievement of children in control groups. The average achievement will not materially differ from that of European children mentioned in (2).

4) The assumption is that the "happiness" of the child in the kindergarten is mainly the outcome of activities successfully completed and suitably rewarded.[4] The teacher does not consciously act to make the children "happy" and 'adjusted!' What happens is that they set up goals for themselves (with the teacher's help, if necessary); successfully achieve them (with the teacher's help, if necessary); receive a reward from the teacher and from the group; and again set up new goals.

The experiment group children's progress will create an emotional and social adjustment significantly better than that of the control group. (The emotional and social state to be measured by independent judges' observation, teachers' rating scales and personality tests).

5) The correlation between a selected part of our tests and scholastic success at the end of the first and second grade will be significantly higher than the correlation between I. Q. as measured by Stanford-Binet and Wechsler and scholastic success in the first and second grade. In other words, thetests constructed by us will be a better predictor of success than the above mentioned intelligence tests.

6) Even when there are 35 children in the class and the kindergarten teacher is only an average educator, it is possible, by suitable guidance of the teacher, to work according to a program based on school requirements on the one hand, and on making good the children's defficiencies on the other. It is possible to develop, to a significant extent, the skills, knowledge and attitudes required for scholastic success. (Of course, a smaller kindergarten group will yield better results).

7) Tests and observation methods given and explained to the teacher in order to examine each of the abilities, attitudes and necessary items of information, will: a) give the teacher a clear and accurate picture of the level of achievement of each child in each sphere; (b) prevent the tendency to work with the class as a whole; c) guide the teacher in setting up small groups and work with them, and

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Rossman: "The Psychology of the Inventor," 1931.
White: "Motivation Reconsidered: the Concept of Competence," 1961.
C. Rogers: "Theory of Creativity," in Parnes and Harding (Ed.), 1962.

work with individual children who really need it; d) show her the rate of progress of each child in each sphere; e) make the teacher more creative by leading her to seek different methods for children who will not progress satisfactorily.

D. STAGE OF IMPLEMENTATION

Our work has progressed up till now through nine of the 12 stages:

1) The determinations of competencies (i.e. cognitive abilities, information, attitudes, vocabularly and concepts) required of children for success in reading, arithmetic and "subjects" in the First and Second Grades.

2) The construction of tests for these competencies, suitable for administration to five year olds in kindergarten (as well as in the First and Second Grades).

3) The administration of these tests to selected groups of 5 year olds in kindergarten.

4) The administration of individual intelligence test - Stanford-Binet - to these selected groups of 5 year olds.

5) The interviewing and observation of parents in the homes of the selected children.

6) The designing of an experimental teaching program aimed at overcoming the deficiencies noted, this program to be applied in kindergarten during the year preceding the First Grade.

7) The selection of kindergartens in which the children in (3) above were placed and the experimental program was carried out.

8) The conduct of the experimental teaching program.

9) The evaluation of the results of the experiment at the end of the experimental program, i.e. on admission to the First Grade.

10) The retesting and evaluation of the results of the experiment at the end of the First Grade.

11) The retesting and evaluation of the results of the experiment at the end of the Second Grade.

12) The refinement of the tests.

In more detail, the steps taken were as follows:

1) The Determination of the Competencies Required:

(a) The determination of competencies required by the curriculum by means of an analysis of the curriculum used in the First and Second Grade.

(b) The determination of competencies required by the teachers in their daily classroom activities; observation, in 30 classrooms of the First and Second Grade (where the teachers were known to represent a range in their ability to teach the culturally deprived) to see the teacher-pupil interaction and to learn what is implicitly required of children if they are to be successful in the interaction.

(c) The determination of the competencies required by the textbooks used: analysis of the readers most frequently used in the First and Second Grade with culturally deprived children to learn the minimum vocabulary and concepts required for success in learning reading, arithmetic and "subjects."

(d) The determination of competencies required by the school situation, insofar as words and concepts are concerned, at the time of admission into the First Grade: selection and assembly of words and concepts judged by chosen competent teachers of culturally deprived children to be required of children upon admission to the First Grade if they are to be successful in "catching-on" to what is being offered in the school situation to teach them reading, arithmetic and "subjects."

2) The Construction of Tests for These Competencies:

(a) The distillation of the information gleaned from the foregoing activities in order to produce a selected list of the key competencies required for success in reading, arithmetic and "subjects" in the First and Second Grades.

(b) The construction of tests forthese specific competencies, suitable for administration to individual children at age 5 in kindergarten, as well as subsequently at age 6, upon admission to the First Grade, again at age 7, upon completion of the First Grade, and at age 8, upon completion of the Second Grade.

(c) This was done as follows: A list of 66 abilities, attitudes, skills, etc., required for success in grade one and two, was compiled. The list served as the basis for constructing tests and evolving methods of observation, designed to test the presence (or absence) of the above mentioned abilities, attitudes and skills in 5 year old children. The tests were given and observations carried out on European five year olds of low socio-economic strata. Traits absent in the majority of them were taken off the list; so were also traits present in the majority of Oriental children. Thus, only those items were retained which were present in Low European children and absent - or rather,

requiring development - in the Oriental ones. All these skills, abilities and attitudes can be grouped in three main categories, derived from the educational classroom situation.

(d) We can portray the educational situation as a dramatic play situation, and therefore as also a growth system having its intrinsic discipline, its necessary dynamic form.

In the educational situation, the teacher and the child are the chief actors. Their action is involved in sequential communication between them. The communication is carried by visual and auditory forms, received by each and expressed by each. Between the receipt and the expression, each has oredering to do in order to make a meaningful connection between what is received and "sent", and to thereby give the communication an evolving and progressive character in the course of which the child can grow in his capacity to order his experience and behaviour as "an educated person." The teacher is the primary agent in the nurturant environment from which the child gains means (meaning) by which his "mind"*) can grow. This is the form and function of the educational situation.

The child is operating in a system of events which are interlocked by 'the play' to provide a circumstance in which he can continue to act 'within a role', and experience, from that position, what it is like to be a creature who can make choices, organize acts, be spontaneously creative, compose something new, have his offering accepted, and see its transformation into something new which returns to him as relevant for his further choosing, organizing, creating, etc., in a continuing cycle.

Conceiving the matter this way, we can deduce some of the necessities in so far as the entering child is concerned. In the main, the child has to be able to enter into the communication system and to maintain himself within it. He has to be able, (1) to receive what the teacher sends, (2) to order his response relevant to what is received and to be sent, and (3) to express that response in a way which invites the continuing flow of communication with the teacher.

More formally expressed, these necessities might be stated as follows:

1. The child has to be able to receive the forms of communication used by the teacher.

2. The child has to be able to organize his response in ways which are relevant to the forms of communication received and to be sent.

3. The child has to be able to express his response in ways which invite the continuing flow of communication with the teacher.

Turning now to the list compiled, we perceive that its items fit into the three necessities.

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*) See: Mooney, R.L. - "Creation and Communication", in "Creativity and Psychological Health", Michael, L.A. (Ed.), Syracuse Univ. Press, 1961.

I. <u>The child has to be able to receive the forms of communication used by the teacher.</u>

This means that the child has to be able to -

(1) physically see and hear;

(2) understand the words a teacher uses;

(3) concentrate while listening to the teacher;

(4) repeat what he understand the teacher to be saying;

(5) recognize that the forms being used <u>are</u> forms of communication;

(6) perceive differences in the structure of different forms of communication used;

(7) become interested in what the teacher says, teaches, or shows;

(8) possess a basic vocabulary in each of the "subjects" taught;

(9) understand a temporal and causal sequence of events;

(10) think causally;

(11) use imagination to fill in missing details;

(12) infer;

(13) generalize inductively;

(14) analyse a whole into its parts and integrate them again;

(15) distinguish common and different elements in a series of words (written or spoken) or pictures;

(16) ignore the immediate, mistaken impression and apply past experience.

II. <u>The child has to be able to organize his response in ways which are relevant to the forms of communication received and to be sent.</u>

This means that the child has to be able to -

(1) remember

(2) know

(3) compare sequences

(4) compose

(5) reason

(6) imagine

(7) plan

(8) compare material newly learned to the already known

(9) concentrate on organizing his response

(10) believe in himself as a learner

(11) infer

(12) free himself from associative-magical thinking based on temporal and spatial proximity alone

(13) draw conclusions based on causality, especially when the connection is not immediately perceptible

(14) distinguish mutually contradictory elements

(15) find solution in the most economical way

(16) perceive relationships which help to determine the principle of part versus whole, source and origin, etc.

(17) have visual-motor coordination

(18) have a functional understanding of instruments, nature of materials, etc.

(19) understand the conservation of volume, quantities, etc.

(20) compare with each other and ignore irrelevant details (to generalize)

(21) discriminate and generalize inductively and deductively

(22) criticize self

(23) analyze a whole into its parts

III. The child has to be able to express his response in ways which invite the continuing flow of communications with the teacher.

This means that the child has to be able to -

(1) follow the teacher's instructions

(2) get satisfaction out of rewards the teacher gives him

(3) ask the teacher for aid when he needs it

(4) accept the teacher's criticism and use it

(5) want to verbalize to the teacher

(6) believe the teacher is able to teach him

(7) express himself orally in a way understood and accepted by the teacher

(8) express himself in writing in a way accepted by the teacher

(9) criticize self

(10) be used to social communication

3) The Administration of the Tests to Selected Groups of 5 Year Olds

(a) The establishment of criteria for making the selection, culminating as follows: All children to have been born in Israel, to have had parents who immigrated to Israel between 8 and 12 years previously, and to have normal, i.e. not broken or distorted, family life. These children then to be divided into four groups:

(1) One group, labeled "Low European," from families numbering 3 or more children, where the father was in a semi-skilled or unskilled occupation, where the parents had received not more than an elementary education, and where the parents had been born in Europe.

(2) A second group, labeled "Low Oriental," from families meeting the same criteria as the preceding group, except that the parents had been born in Asia or Africa.

(3) A third group, labeled "High European," from families numbering 2 or more children, where the father was in a profession, where the parents had received a high school education or more, and where the parents had been born in Europe.

(4) A fourth group, labeled "High Oriental," from families meeting the same criteria as the preceding group, except the parents had been born in Asia or Africa.

(b) The selection of the children, the numbers of cases in the groups being as follows:

(1) Low European - 50 children

(2) Low Oriental - 156 children

(3) High European - 50 children

(4) High Oriental - 50 children

Total 306 children

(c) The administration of the tests to these children

(d) The organization of the statistical findings, making the following comparisons of the groups:

(1) Low European with Low Oriental, a significant difference meaning that, at the low level, the ethnic difference was operative.

(2) High European with High Oriental, a significant difference meaning that, at the high level, the ethnic difference was operative.

(3) High European with Low European, a significant difference showing that, within the European ethnic group, the difference in level was operative.

(4) High Oriental with Low Oriental, a significant difference showing that, within the Oriental ethnic group, the difference in level was operative.

(5) High European with Low Oriental, a significant difference showing that, when level and ethnic differences are combined, the combined difference is operative.

(6) High Oriental with Low European, a significant difference showing that, when level and ethnic differences are combined, the combined difference is operative.

(e) The processing of the statistical comparison, using 0.01 as the test of significance.

(f) The reporting of the statistical findings, summarized as follows:

(1) In five of the six comparisons the differences were found to be statistically significant, in the sixth the difference was not significant.

(2) Differences in level, within each ethnic group, were found to be significant, with the High Level better in both the European and the Oriental ethnic groups.

(3) Differences in ethnic groups, within each level, were found to be significant, with the European ethnic group better in both the low and high levels.

(4) Differences, when combining ethnic and level differences, were found to be significant in one comparison, the High European better than the Low Oriental, not significant in the second comparison, the High Oriental <u>not</u> significantly better than Low European.

(g) The testing for possible differences in ethnic sub-groups within the group labeled "Low Oriental" in order to determine whether the group so labeled is a body or should more properly be differentiated according to ethnic sub-groups. The test results were differentiated according to Yemenite, Moroccan, Iraqui sub-groups, revealing no significant differences, leaving the title "Low Oriental" as properly covering a consistent group.

(h) After we constructed the tests we could name the basic cognitive abilities, attitudes and items of basic information, but we could not tell the degree to which each needed development. To answer the latter question, we turned to the lower European children who generally are succesful in first and second grades, and with these tests, discovered how much of each item of ability, attitude and information they possessed. We then tested the Low Oriental children to find how far and in what respects they differed from the Low European children.

The repeated juxtaposition between the European and the Oriental children may lead to the erroneous inference that the difference is insurmountable

because somehow genetic. Our point of departure is entirely different; the difficulties lie in the fact that the Orientals have not learned, from their environment, how to carry on certain processes which are fundamental to successful schooling. The Europeans do well in school because they have had the opportunity to develop the necessary processes. The focus of the study can then turn on the problem of how to teach those processes.

4) The Administration of Individual Intelligence Tests - Stanford - Binet - to the Same Selected Groups of 5 Year Olds

(a) The groups chosen:

Education of parents	Occupation of father	No. of children in the family	Parents' country of origin	N	I.Q.	
Elementary or less	Semi-skilled or unskilled	3 - 7	Yemen (Oriental)	48	87,8	No significant difference between the three low Orietal groups
Elementary or less	semi-skilled or unskilled	3 - 7	Iraq (Oriental)	51	91,0	
Elementary or less	semi-skilled or unskilled	3 - 7	Morocco (Oriental)	57	91,0	
Elementary or less	semi-skilled or unskilled	2 - 5	Poland or Rumania (Europe)	50	102,4	
High - school	professional	2 - 3	Poland or Rumania (Europe)	50	130,6	
High-school or University	professional	2 - 3	Iraq (Oriental)	50	112,2	

306

(b) The organization of the statistical findings, making the following comparisons of the groups:

(1) Low European with Low Oriental, a significant difference showing that, at the low level, the ethnic differrence was operative.

(2) High European with High Oriental, a significant difference showing that, at the high level, the ethnic differences were operative.

(3) High European with Low European, a significant difference meaning that, within the European ethnic group, the difference in level was operative.

(4) High Oriental with Low Oriental, a significant difference showing that, within the Oriental ethnic group the difference in level was operative.

(5) High European with Low Oriental, a significant difference meaning that,

when level and ethnic differences are combined, the combined difference is operative.

(6) High Oriental with Low European, a significant difference showing that, when level and ethnic differences are combined, the combined difference is operative.

The processing of the statistical comparison, using 0.01 as the test of significant.

(c) The reporting of the statistical findings, summarized as follows:

(1) In each of the six comparisons the differences were found to be significantly different.

(2) Differences in level, within each ethnic group, were found to be significant, with the High level better in both the European and the Oriental ethnic groups.

(3) Differences in ethnic groups, within each level, were found to be significant, with the European ethnic group better in both the Low and High levels.

(4) Differences, when combining ethnic and level differences, were found to be significant, the High European better than the Low Oriental, and the High Oriental better than the Low European.

5) The Interviewing and Observation of Parents

Visits to the homes of the parents of children in each of the four groups (Low European, Low Oriental, High European, High Oriental), to interview the parents and make observations in the homes, seeking clues to the child-rearing practices which might -

(1) explain the differences in test results among the children in the four groups, and,

(2) give leads to the teaching practices which, when used in the kindergarten, might best fit into the backgrounds already provided by home situations.*

(6) The Designing of an Experimental Teaching Program

(a) The construction of a program of teaching activities to be carried out in kindergartens with the Low Oriental group; the preparation of tools with which to carry out this program, and the devising of methods of work for each proposed activity.

(b) The construction of a supplemental program (with appropriate tools and methods) for work with the parents of one-half of the children in the experimental

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* There are two articles on this topic in preparation:

1) Child Rearing Practices in the Home as they Affect the I.Q. of Culturally Deprived Young Children.

2) Child Rearing Practices in the Home as they Affect the School Success of the Culturally Deprived Children.

program, seeking parental support for the work of their children in kindergarten, results to be compared with the one-half of the children in the experimental group whose parents were not involved in the supplemental program.

The programs were designed to meet the deficiences of the Low Oriental children as revealed by our tests, using as the criterion the competencies in which the Low European children were not deficient; since the Low European children succeed in First and Second Grades, we reasoned that the Low Oriental children might also succeed if they had the same competencies as the Low European show, taking as the base line the test results of both groups at the 5 year old level.

The teaching activities were organized not as a series of separate projects, one for each deficiency, but as an integrated whole guided by the teachers' effort to establish a give-and-take in meaningful communication with each child (whether working individually or with groups) as the activities were undertaken. In general, this meant that we guided the teachers to see that each child, to learn from the teacher's words and acts, needs to be offered what he can receive in his own understanding, needs to be freed to order his own response, and needs to have that response recognized bythe teacher as the child's effort to enter into a continuing communication with the teacher, the whole to be characterized by the effort of each to make his words and acts valued and relevant to the continuing words and acts of the other. More specifically, we tried to support the teachers in this mode of behaviour by emphasizing the following:

(1) That each child is potentially able to overcome his deficiencies: that a child's failure to respond lies not in his basic ineptitude but in his inability to "catch on" to the "game" of communication with the teacher, this being due, among Low Oriental children, mainly to the fact that these children have not been given the chance to learn this "game" from parents in the home; in the case of these children, it is not that they cannot learn specific activities required in the school setting, but rather that they have not learned a way to enter the primary engagement with the teacher, and therefore, not comprehending the context of the whole, are unable to comprehend its instrumental parts. Specific competencies can be developed in the children when the children are able to hold a sustained communicating relation with the teacher. Such communication is therefore basic to all the rest.

(2) That, in view of this basic condition, care must be taken to "break through" into the experiencing world of each specific child, which means to have specific knowledge of each child's particular competencies and deficiencies and to form teaching acts aimed to meet these particular; each teacher was therefore taught to use the test findings on each child and to repeatedly re-test, formally and informally, to discover what, in fact, each child was learning.

(3) That individual children differ not only in the specifics they have learned and are learning but also in the manner in which they take on learning; what works with one child will often not work with another; there is, therefore, no way to reach all children, and it is necessary for the teacher to be highly creative in finding and supplying the way which will work for varied individuals; that creative act is left to the imagination and ingenuity of the teacher; we, as

experimenters, can make tentative suggestions for purposes of illustration, but we cannot tell the teachers how to teach; that is up to them.

(4) That there is a goal for the year's teaching in the sense that the competencies are known which permit children to be successful when they enter the First Grade; communication begun in the beginning of the year in kindergarten is to grow increasingly more comprehensive in what it is able to include so that, by the end of the year, the children have internalized as their own the competencies they will need for the First Grade; the tests used in the beginning serve not only to keep track of the progress of individual children through the year, but also to define the end which is sought; the teachers are not without anchor for their work.

(5) That, as children differ, so do teachers; as ways of learning vary, so also do ways of teaching; as children have particular backgrounds of experience which enable them to understand and to see certain things, and not to understand or see others, so also do teachers; as children have to organize their own response in the situation and be free to do so, so also do the teachers; the requirements and the freedoms requisite for the children-in-communication are requirements and freedoms requisite also for the teachers-in-communication; the experimenters therefore undertook to deal with the teachers as the teachers were expected to deal with the children, insofar as basic attitude is concerned.

7) <u>The Selection of Kindergarten Groups for Use in the Experiment</u>

(a) The determination of criteria for the selection of classes and children, these being as follows:

(1) All children to be five year olds, to come from slum districts or rural isolated schools where the inhabitants are virtually all from Yemen, Morocco or Iraq.

(2) All classes to be of normal size, with teachers already operating in these schools.

(3) Four classes to be taken as controls and four as experimentals.

(4) The controls and experimentals to be matched in pairs of classes, having the following characteristics:

- The same number of children.
- The same number of children from each of the ethnic subgroups, i.e. Yemenite, Moroccan, Iraqui.
- The same length of residence in Israel, i.e. all children to come from homes where the parents had immigrated eight to ten years previously.
- The same level of education of the parents (i.e. elementary education or less): the same level of occupation of the father (i.e. semi-skilled or unskilled); the same number of children in the family (i.e. 3 or more): no families broken or distorted by abnormal conditions.
- The same community, i.e. each control group paired to an experimental group from the same community.
- The same proportionate distribution of test scores on the Stanford-Binet Intelligence Test, i.e. the same proportions of children in the sub-groups of 110 and up, 101 to 109, 91 to 100, 81 to 90, 80 and below.

The Experimental and Control Groups (Low Oriental)

on the Individaul Intelligence Test (by Father's Country of Origin)

	Yemen		Iraq		Morocco		Total	
	Exper.	Control	Exper.	Control	Exper.	Control	Exper.	Control
Mean	87,6	87,8	93,7	90,0	90,0	93,0	90,6	91,5
Standard deviation	14,2	8,99	14,9	13,3	14,2	10,4	14,7	15,6
t	0,087		0,987		1,90		1,23	

The difference between the experimental and control groups not significant.

- The same distribution of test scores on our own battery of tests, using four sub-scores.
- The same numbers of (a) boys and (b) girls.
- The same quality of teaching, i.e. teaching paired accc:rding to their rating by supervisors as either above average, average, or below average in teaching competence.

(b) The designation of one-half the children in the experimental groups with whose parents the program of supplemtntal acitvity was carried out; set up to test the value of such efforts to promote the sharing of responsibility between home and school for raising the level of performance of the children in school *).

*)An article in preparation: An attempt to cooperate with parents whose education is elementary or less, in a program of intellectual development of their children in kindergarten.

8) The Conduct of the Experimental Teaching Program

(a) Carried on through the school year.

(b) Working with the teachers on the four experimental groups, seeking conscious and consistent use of the experimental program, as planned and directed by the experimenters.

(c) None of the teachers in the experimental and control groups dropped out during the program.

9) The Evaluation of the Results of the Experiment at the Year's End

(a) Performance of statistical comparisons as between the beginning and the end of the experimental program, on each child in the control and the experimental groups, using:

(1) Stanford-Binet Intelligence Test.

(2) The WISC for children.

(3) The battery of tests constructed by us.

(b) Comparisons of the groups:

(1) The Low Oriental experimental groups with Low Oriental control group.

(2) Low Oriental experimental group with Low European control group.

(c) Taking now our findings, in the light of the hypotheses stated at the beginning, we reached the following conclusions:

Hypothesis 1: One year of compulsory kindergarten education (age 5-6) in an experimental framework will cause a significant rise in achievement on I.Q. tests (Stanford-Binet and WISC for children) on the part of culturally deprived children included in the experiment, as compared with the control groups.

The table below confirms this hypothesis: The average difference in I.Q. (on Stanford-Binet and WISC) in the experimental group was significantly higher (p 0.001) than that of the control group, in each ethnic group, and in the experimental group as a whole.

Changes in I.Q. (on Stanford-Binet) which were noted after the Elapse of One Year, in the Experimental and the Control Groups

	Yemen			Iraq			Morocco					
	5 Y.	6 Y.	d.	5 Y.	6 Y.	d.	5 Y.	6 Y.	d.	5 Y.	6 Y.	d.
Experimental group	87.6	108.7	21.1	93.7	108.9	15.2	90.0	111.5	21.5	90.6	109.7	19.1
Control group	87.6	100.0	12.2	90.0	105.1	15.1	93.0	105.2	12.2	91.5	103.7	12.2
Difference between experimental and control after one year			8.7*			3.8**			6.3*			6.0*

5 Y.: at the age of 5 years
6 Y.: at the age of 6 years
d.: differences occurred.

* Statistically significant at the 0.01 level
** Statistically significant at the 0.05 level

d) It was found that the lower the child's initial I.Q., (on the Stanford-Binet,) the greater his rise during the year. The same tendency is revealed in the control group, but here the I.Q. at the initially brightest, far from rising, fall sharply.

This can be seen in the following table:

Groups	Initial I.Q. (Stanford-Binet)	Average rise at the end of the year	
		Experimental Group	Control Group
1	79 and less	29.0	18.1
2	80 - 89	22.38	16.5
3	90 - 99	17.24	13.8
4	100 - 109	10.75	8.6
5	110 - 119	10.9	-3.0
6	120	1.25	-14.0

The differences in I.Q. at the end of the experimental year were also evident on the WISC for children, as shown below:

	IRAQ	MOROCCO	YEMEN	TOTAL
Experimental	109.2	110.1	96.2	105.4
Control	98.7	96.3	89.4	94.3
Difference	10.5*	13.8*	6.8**	11.1*

see "remark" below

* Statistically Significant at the 0.01 level
** Statistically Significant at the 0.05 level

Analyzing the performance on each of the five verbal-subtests of the WISC, we find that the difference between the experimental and the control groups was significant on four out of the five sub-tests, as can be seen from the table below:

Sub-test	Experimental group	Control group	Difference
Similarities	12.7	9.7	3.0*
Comprehension	11.4	9.4	2.0*
Arithmetic	10.3	8.6	1.7*
Information	12.0	10.7	1.3*
Digit span	8.2	7.7	0.5

* Statistically significant at the 0.01 level

Hypothesis 2: The children's I.Q. at the end of the year will not significantly differ from the average found in children of the same age whose parents come from Europe, have an elementary school education or less, and engage in unskilled or semi-skilled occupation.
This was confirmed on both the Terman and the Wechsler Tests.

Remark: As the children in the control group are attending regular compulsory kindergarden classes, they also received planned promotion, but of a different approach. What can be learned from the results in the tables on pages 19 and 20 are:

a) that it is possible to achieve a significant change in I.Q. through planned promotion
b) that different theoretical and practical approaches toward promotion, bring significantly different results.

of six, the average I.Q. of the experimental group was, on the Wechsler Test, 105.5, while that of the Low Europeans was 106. On the Terman Test, the average I.Q. at the age of six of the experimental group was 109.7, of the Low Europeans 110.5.

Hypothesis 3: One year of this education will cause a significant rise in achievements on the tests constructed by us, as compared with the achievement of children in control groups. The average achievement will not materially differ from that of the European children mentioned in Hypothesis No. 2.

Since, as we have explained above, we will choose for the tests we have constructed only those which will correlate highly with success at the end of the first grade - and the testing of the first graders has not yet been completed, we cannot as yet confirm this hypothesis.

Hypothesis 4: The assumption is that the "happiness" of the child in the kindergarten is mainly the outcome of activities successfully completed and suitably rewarded*). The teacher does not consciously act to make the children "happy" and "adjusted." What happens is that they set up goals for themselves (with the teacher's help, if necessary); successfully achieve them (with the teacher's help, if necessary); receive a reward from the teacher and from the group; and again set up new goals.

The experiment group children's progress will create an emotional and social adjustment significantly better than that of the control group. (The emotional and social state to be measured by independent judges' observation, teachers' rating scales and personality tests).

On the basis of independent judges' observations, teachers' ratings -no significant difference in the average of the experimental as against the control group was found.

Thus the hypothesis was not confirmed.

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*) Rossman: "The Psychology of the Inventor," 1931.
White: "Motivation Reconsidered: the Concept of Competence," 1951.
C. Rogers: "Theory of Creativity," in Parnes & Harding (Ed.), 1962.

Hypothesis 5: The correlation between a selected part of our tests and scholastic success at the end of the first and second grade will be significantly higher than the correlation between I.Q. as measured by Stanford-Binet and Wechsler and scholastic success in the first and second grade. In other words, the tests constructed by us will be a better predictor of success than the above mentioned intelligence tests.

This hypothesis could not be confirmed, for reasons given above under (3).

Hypothesis 6: Even when there are 35 children in the class and the kindergarten teacher is only an average educator, it is possible, by suitable guidance of the teacher, to work according to a program based on school requirements on the one hand, and on making good the children's deficiencies on the other. It is possible to develop, to a significant extent, the skills, knowledge and attitudes required for scholastic success. (Of course, a smaller kindergarten group will yield better results).

Since, as stated above, we worked with regular-sized kindergarten classes and regular teachers assigned by the Ministry of Education, the hypothesis was confirmed. (See tables after Hypothesis No. 1).

Hypothesis 7: Tests and observation methods given and explained to the teacher in order to examine each of the abilities, attitudes and necessary items of information, will: (a) give the teacher a clear and accurate picture of the level of achievement of each child in each sphere; (b) prevent the tendency to work with the classes as a whole; (c) guide the teacher in setting up small groups and work with them, and work with individual children who really need it; (d) show her the rate of progress of each child in each sphere; (e) make the teacher more creative by leading her to seek different methods for children who will not progress satisfactorily.

This hypothesis was confirmed on the basis of independent judges' observation.

10) The Retesting and Evaluation of the Results of the Experiment at the End of the First Grade.

(a) The tests used:

- WISC
- Coloured progressive matrices by Raven
- Der Aufza Test by A. Buseman
- Mechanical reading
- Comprehension of text
- Arithmetic problem solving.

(b) The subjects used: The majority of the children included in the experimental kindergarten group are studying in first grade classes in which intellectual promotion activities are given to the children by means of text-books, workbooks and reader guides which were specifically prepared for children from socio-culturally underprivileged backgrounds.

The rest are attending various schools in which they are studying according to different methods.

We thus have four groups of children in the first grade, as follows:

	Experiment in Kindergarten	Special teaching materials in the first grade
Experimental group	+	+
Control group	-	-
Dispersed	+	-
In experimental first grade	-	+

Results will be summarized when all first grade children have been tested, at the end of this year. A follow-up of these children will be undertaken at the end of the second grade.